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APPLICATION N	Ю.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,959	•	04/27/2001	Mikhail Rodionovich Baklanov	IMEC100.001DV1	1445
20995	7590	07/20/2004		EXAM	INER
KNOBB	E MAR	TENS OLSON & B	TRINH,	TRINH, HOA B	
	2040 MAIN STREET FOURTEENTH FLOOR				PAPER NUMBER
100	IRVINE, CA 92614			2814	
				DATE MAILED: 07/20/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

		adn					
,	Application No.	Applicant(s)					
Office Action Summers	09/844,959	BAKLANOV ET AL.					
Office Action Summary	Examiner	Art Unit					
	Vikki H Trinh	2814					
The MAILING DATE of this communication ap Period for Reply	pears on the cover sheet with the o	correspondence address					
A SHORTENED STATUTORY PERIOD FOR REPL THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1. after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above, the maximum statutory period - Failure to reply within the set or extended period for reply will, by statut - Any reply received by the Office later than three months after the mailin earned patent term adjustment. See 37 CFR 1.704(b). Status	136(a). In no event, however, may a reply be tir ly within the statutory minimum of thirty (30) day will apply and will expire SIX (6) MONTHS from e, cause the application to become ABANDONE	nely filed s will be considered timely. the mailing date of this communication. (35 U.S.C. § 133).					
1) Responsive to communication(s) filed on <u>08</u>	<u>May 2003</u> .						
2a) ☐ This action is FINAL . 2b) ☑ TI	his action is non-final.						
Since this application is in condition for allow closed in accordance with the practice under Disposition of Claims							
4)⊠ Claim(s) <u>11-14</u> is/are pending in the applicati	On ·						
4a) Of the above claim(s) is/are withdra							
5) Claim(s) is/are allowed.	with from consideration.						
6)⊠ Claim(s) <u>11-14</u> is/are rejected.							
7) ☐ Claim(s) is/are objected to.							
8) Claim(s) are subject to restriction and/o	or election requirement						
Application Papers	or election requirement.						
9) The specification is objected to by the Examine	er.						
10)☐ The drawing(s) filed on is/are: a)☐ accepted or b)☐ objected to by the Examiner.							
Applicant may not request that any objection to the							
11) The proposed drawing correction filed on							
If approved, corrected drawings are required in re		•					
12) The oath or declaration is objected to by the Ex	kaminer.	_					
Priority under 35 U.S.C. §§ 119 and 120							
13) Acknowledgment is made of a claim for foreig	n priority under 35 U.S.C. § 119(a	a)-(d) or (f).					
a) ☐ All b) ☐ Some * c) ☐ None of:	, ,	, , , ,					
1. Certified copies of the priority document	ts have been received.						
2. Certified copies of the priority document		on No.					
3.☐ Copies of the certified copies of the pric application from the International Bu	ority documents have been receive ureau (PCT Rule 17.2(a)).	ed in this National Stage					
* See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).							
a) The translation of the foreign language pro							
15) Acknowledgment is made of a claim for domes	tic priority under 35 U.S.C. §§ 120) and/or 121.					
Attachment(s)							
)	5) Notice of Informal	y (PTO-413) Paper No(s) Patent Application (PTO-152)					

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DETAILED ACTION

Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 - 1. Determining the scope and contents of the prior art.
 - 2. Ascertaining the differences between the prior art and the claims at issue.
 - 3. Resolving the level of ordinary skill in the pertinent art.
 - 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
- 4. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooney, III et al. (6,066,577) in view of Chiang et al. (6,309,956).

that a portion of the film is fluorinated (col. 5, line7). See figure 2F.

Cooney, III et al. (6,066,577) discloses an IC comprising an interconnect structure having a dielectric layer 28 (col. 4, line 66). The dielectric layer 28 includes at least a portion of a hard mask layer 22, wherein the hard mask 22 comprising a silicon dioxide film (col. 5, line 13) such

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However, Cooney does not teach that the film is an organic film material.

Chiang et al. '956 teaches a semiconductor device having an organic dielectric film/layer 140 (col. 2, lines 60-65) with a low dielectric constant to replace silicon dioxide material (col. 1, lines 40-41).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Cooney with an organic dielectric layer, as taught by Chiang et al., so as to provide a reduce capacitance. (Chiang et al., col. 3, line 9).

As to claim 12, Chiang et al. (6,309,956) discloses the patterned organic film 140 is a patterned low-K organic polymer film. See column 3, lines 8-9.

As to claim 13, Cooney teaches the surface has fluorinated portion 22 and the interior 28 has non-fluorinated portion. See column 2, lines 60-68 and col 5, line 51.

As to claim 14, Cooney teaches that depending on the selection of materials for the K value of the fluorinated portion (col. 5, lines 7-13), that k value may be less than the K value of the non-fluorinated portion (col. 4, lines 66-67). (For example, the K value for the fluorinated silicon dioxide is less than the K value for the non-flourinated silicon nitride).

Response to Arguments

1. Applicant's arguments with respect to claims 11-14 have been considered but are moot in view of the new ground(s) of rejection.

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Accordingly, Cooney discloses a silicon dioxide film being fluorinated with among others a CxFy source. Chiang cures the deficiency in Cooney by teaching that silicon dioxide can be replace with an organic material for reducing the capacitance in the device. Thus the combined teaching of Cooney and Chiang meets all of the elements for a 103 rejection, as stated in the above rejection.

For the foregoing reasons, the rejection above is proper.

Conclusion

1. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached Mon-Tuesday, Thurs-Friday, 7:30 AM - 6:00 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705.

Vikki Trinh, Patent Examiner AU 2814

> LONG PHAM PRIMARY EXAMINER